



TAMIL NADU Dr. J. JAYALALITHAA FISHERIES UNIVERSITY

Self Study Report for Under Graduate
Degree (B.F.Sc) Programme

Submitted by

Dr. M.G.R. Fisheries College and Research Institute
Oradiyampulam, Thalainayeru – 614 712
Nagapattinam District
Tamil Nadu

6.4. SELF STUDY REPORT FOR THE UG (B.F.SC) PROGRAMME

6.4.1. BRIEF HISTORY OF THE B.F.SC. DEGREE PROGRAMME:

Dr. M.G.R. Fisheries College and Research Institute, Thalainayeru was started on 21.09.2017 by the Government of Tamil Nadu. Bachelor of Fisheries Science (B.F.Sc) is the only Under Graduate (UG) Programme offered by the college. First batch of B.F.Sc students (21 Nos.) joined during 2017-18 and the strength was subsequently raised from 20 to 30 during the academic year 2018-19 and 30 to 40 from 2019-20 onwards. There are seven departments functioning in the college and offering courses in the B.F.Sc Degree Programme.

UG DEGREE COURSES OFFERED AT Dr. M.G.R. FC & RI, THALAINAYERU

1. DEPARTMENT OF AQUACULTURE

Sl. No.	Course No.	Course title	Credit Hours
1.	FS 101	Principles of Aquaculture	2 (1+1)
2.	FS 110	Freshwater Aquaculture	3 (2+1)
3.	FS 111	Aquaculture in Reservoirs	2 (1+1)
4.	FS 211	Genetics and Breeding	2 (1+1)
5.	FS 202	Fish Food Organism	2 (1+1)
6.	FS 201	Ornamental Fish Production and Management	2 (1+1)
7.	FS 210	Coastal Aquaculture and Mariculture	3 (2+1)
8.	FS 302	Introduction to Biotechnology and Bioinformatics	3 (2+1)
9.	FS-310	Shellfish Hatchery Management	2 (1+1)
10.	FS 308	Aquaculture Engineering	3 (2+1)
11.	FS 212	Fish Nutrition and Feed Technology	3 (2+1)
12.	FS 301	Finfish Hatchery Management	3 (2+1)

2. DEPARTMENT OF FISH PROCESSING TECHNOLOGY

Sl. No.	Course No.	Title of the Course	Credit Hours
1.	FS-106	Fundamentals of Biochemistry	3 (2+1)
2.	FS-107	Fundamentals of Microbiology	3 (2+1)

3.	FS-117	Food Chemistry and Fish in Nutrition	3 (2+1)
4.	FS- 206	Freezing Technology	2 (1+1)
5.	FS-217	Fish Canning Technology	2 (1+1)
6.	FS-306	Fish By-Products and Waste Utilization	2 (1+1)
7.	FS-307	Microbiology of Fish and Fishery Products	3 (2+1)
8.	FS-313	Fish Products and Value Addition	3 (2+1)
9.	FS-314	Fish Packaging Technology	2 (1+1)
10.	FS-315	Quality Assurance of Fish and Fishery Products	3 (2+1)

3. DEPARTMENT OF AQUATIC ENVIRONMENT MANAGEMENT

Sl. No.	Course No.	Course Title	Credit hours
1.	FS 104	Meteorology, Climatology and Disaster Management	3 (2 +1)
2.	FS 105	Soil and water chemistry	3 (2+1)
3.	FS 115	Limnology	3 (2+1)
4.	FS 116	Marine Biology	3 (2+1)
5.	FS 205	Aquatic Ecology and Biodiversity	3 (2+1)
6.	FS 215	Fishery Oceanography	2 (1+1)
7.	FS 216	Aquatic pollution and Coastal zone management	3 (2+1)

4. DEPARTMENT OF FISHERIES RESOURCE MANAGEMENT

Sl. No.	Course No.	Title of the Course	Credit Hours
1.	FS-102	Taxonomy of Finfish	3 (1+2)
2.	FS-103	Anatomy and Biology of Finfish	3 (2+1)
3.	FS-112	Taxonomy of Shellfish	2 (1+1)
4.	FS-113	Anatomy and Biology of Shellfish	2 (1+1)
5.	FS-114	Inland Fisheries	3 (2+1)
6.	FS-204	Marine Fisheries	3 (2+1)
7.	FS-214	Physiology of Finfish and Shellfish	3 (2+1)

8.	FS-305	Population Dynamics and Stock Assessment	3 (2+1)
----	--------	--	---------

5. DEPARTMENT OF AQUATIC ANIMAL HEALTH MANAGEMENT

Sl. No.	Course No.	Course title	Credit Hours
1.	FS 203	Fish Immunology	2 (1+1)
2.	FS 213	Fish and Shellfish Pathology	3 (2+1)
3.	FS 303	Pharmacology	3 (2+1)
4.	FS 304	Fish Toxicology	2 (1+1)
5.	FS 311	Microbial and Parasitic Diseases of Fish and Shellfish	3 (2+1)
6.	FS 312	Therapeutics in Aquaculture	2 (1+1)

6. DEPARTMENT OF FISHING TECHNOLOGY AND FISHERIES ENGINEERING

Sl. No.	Course No.	Course title	Credit Hours
1.	FS 207	Refrigeration and Equipment Engineering	3 (2+1)
2.	FS 218	Fishing Gear Technology	2 (1+1)
3.	FS 309	Fishing Craft Technology	2 (1+1)
4.	FS 316	Fishing Technology	2 (1+1)
5.	FS 317	Navigation and Seamanship	2 (1+1)

7. DEPARTMENT OF FISHERIES EXTENSION, ECONOMICS AND STATISTICS

Sl. No.	Course No.	Course Title	Credit Hours
1.	FS 108	Statistical Methods	3 (2 + 1)
2.	FS 118	Information and Communication Technology	2 (1 + 1)
3.	FS 208	Fisheries Extension	3 (2 + 1)

		Education and Personality Development	
4.	FS 209	Fisheries Economics	3 (2 + 1)
5.	FS 318	Fisheries Administration and Entrepreneurship Development	2 (2 + 0)
6.	FS 319	Fisheries Co-operatives, Marketing and Business Management	3 (2 + 1)
7.	FS 401	Student READY Programme	
		a) In-plant attachment (for 8 weeks)	10 (0 + 10)
		b) Rural Fisheries Work Experience Prog. (for 8 weeks)	8 (0 + 8)
		c) Study Tour (in and outside the State) (for 4 weeks)	2 (0 + 2)

6.4.2 FACULTY STRENGTH

DEPARTMENT WISE FACULTY STRENGTH:

Sl. No.	Name of the Post	Sanctioned strength	Staff in position	No. of Vacancy
Dean's Office				
1.	Dean(Professor)	1	1	-
I - Department of Aquaculture				
1.	Professor	1	0	1
2.	Associate Professor	2	0	2
3.	Assistant Professor	5	4	1
4.	Assistant Professor (Contractual)	3	2	1
II- Department of Aquatic Animal Health Management				
1.	Assistant Professor	3	2	1
2.	Assistant Professor (Contractual)	2	1	1
III – Department of Fisheries Resource Management				
1.	Associate Professor	1	0	1

2.	Assistant Professor	3	3	0
3.	Assistant Professor (Contractual)	2	1	1
IV – Department of Aquatic Environment Management				
1.	Associate Professor	1	0	1
2.	Assistant Professor	2	2	0
3.	Assistant Professor	1	0	1
V – Department of Fish Processing Technology				
1.	Professor	1	0	1
2.	Associate Professor	1	0	1
3.	Assistant Professor	3	2	1
4.	Assistant Professor	2	1	1
VI - Department of Fishing Technology and Fisheries Engineering				
1.	Associate Professor	1	0	1
2.	Assistant Professor	2	1	1
3.	Assistant Professor	1	0	1
VII - Department of Fisheries Extension, Economics and Statistics				
1.	Assistant Professor	2	1	1
2.	Assistant Professor (Contractual)	1	1	0
Total		41	22	19

6.4.3. TECHNICAL AND SUPPORTING STAFF:

The status of overall administrative, technical and supporting staff is given below;

Sl. No.	Name of the Post	Sanctioned strength	Staff in position	No. of Vacancy
Administrative Staff				
1.	Administrative Officer	1	0	1
2.	Assistant Accounts Officer	1	1	0
3.	Superintendent	2	2	0
4.	Assistant	3	3	0
5.	Junior Assistant	2	1+1*	0
6.	Typist	4	3*	1
7.	Steno – typist	2	0	2

8.	Lab Technician	2	0	2
9.	Lab Assistant	2	0	2
10.	Driver	2	2	0
11.	Assistant Engineer	1	1	0
	Total	22	10 + 4*	8
Technical and Supporting Staff*				
1.	Skipper	1	1	0
2.	Boson	1	1	0
3.	Engine Driver	1	1	0
4.	Mechanic Grade I (Mechanical Engineering)	1	1	0
5.	Mechanic Grade I (Electronics and communication)	1	1	0
6.	Mechanic Grade II (Marine Diesel Mechanic)	2	1	1
7.	Turner	2	0	2
8.	Fitter	2	0	2
9.	Welder	2	1	1
10.	Deck-hand	3	1	2
11.	Lab. Technician	4	4	0
12.	Lab. Assistant	4	1	3
13.	Fishermen / Fish Processing Technician	15	2	13
14.	Drivers	2	2	0
15.	Farm Manager	2	1	1
16.	Farm/ Hatchery Technician	2	1	1
17.	Hatchery Manager	2	0	2
18.	Farm / Hatchery Supervisors	6	2	4

19.	Electrician	1	1	0
20.	Plumber	1	1	0
21.	Helper	4	2	2
22.	Care takers	4	1	3
23.	Cook	2	2	0
24.	Sweeper cum scavenger	4	4	0
25.	Security	10	6	4
Total		79	38	41
Total Non-Teaching Staff		101	52	49
(Administrative Staff + Technical and Supporting Staff)				
*Engaged on contractual basis on monthly consolidated pay				

DEPARTMENT-WISE STATUS OF TECHNICAL AND SUPPORTING STAFF

Sl. No	Name of the Department	Staff	Staff in position
1.	Department of Aquaculture	Lab technician	2
2.	Department of Aquatic Animal Health Management	Lab Technician	1
3.	Department of Fish Processing Technology	Fish Processing Technician	2
4.	Department of Fisheries Resource Management	Lab Attendant	1
5.	Department of Aquatic Environment Management	Lab Technician	1
6.	Department of Fishing Technology and Fisheries Engineering	Boson	1
		Skipper	1

6.4.4. CLASSROOMS AND LABORATORIES:

There are **four SMART classrooms** each with a capacity to accommodate 60 students of the UG degree programme. In addition to the dedicated **UG laboratories in all**

the seven departments, there are other advanced laboratories through which students are being taught advance technologies of the respective departments.

A. SMART UG CLASS ROOMS:

Batch	Area	Seating Capacity	Facilities
I B.F.Sc	1111 Sq. Feet	60	LCD projector
II B.F.Sc	1111 Sq. Feet	60	White board
III B.F.Sc	1111 Sq. Feet	60	Green board
IV B.F.Sc	1111 Sq. Feet	60	Podium Speakers Laptop with Wifi Armed chair with writing pad and book rack CCTV surveillance

B. UG LABS- GENERAL SPECIFICATIONS:

Sl. No.	Department	Area	Seating Capacity	Facilities
1.	Aquaculture	1124 Sq. Feet	60	Working platform - 94 feet Granite top tables - 10 Nos. Sink - 2 Nos. Lab stools - 45 Nos. Green board - 1 White board - 1 No
2.	Fish Nutrition	1116 Sq. Feet	60	Working platform - 74 feet Granite top tables - 10 Nos. Sink -2 Nos. Lab stools - 45 Nos. Green board - 1 No White board - 1 No
3.	Fisheries Resource Management	1124 Sq. Feet	60	Working platform - 82 feet Granite top tables - 10 Nos. Sink - 2 Nos. Lab stools - 45 nos.

				Green board - 1 No White board - 1 No
4.	Aquatic Environment Management	1097 Sq. Feet	60	Working platform - 86 feet Island table with sinks - 4 Nos. Sink - 2 Nos. Lab stools – 45 Nos. Green board - 1 No. White board - 1 No.
5.	Fish Processing Technology	1097 Sq. Feet	60	Working platform - 45 feet Sink - 2 Nos. Lab stools - 45 Nos. Green board - 1 No. White board - 1 No.
6.	Biochemistry	1111 Sq. Feet	60	Working platform - 75 feet Island table - 2 Nos. Sink - 2 Nos. Lab stools - 45 Nos. Green board - 1 No. White board - 1 No.
7.	Microbiology	1097 Sq. Feet	60	Working platform - 91 feet Granite top table - 2 Nos. Island table - 1 No. Sink - 2 Nos. Lab stools - 45 Nos. Green board - 1 No. White board - 1 No.
8.	Fishing Technology and Fisheries Engineering	1102 Sq. Feet	60	Working platform - 82 feet Lab stools - 45 Nos. Green board -1 No. White board - 1 No.
9.	Aquatic Animal Health Management	1104 Sq. Feet	60	Working platform - 91 feet Granite top tables - 4 Nos.

				Island tables – 2 Nos. Sink - 2 Nos. Lab stools - 45 Nos. Green board - 1 No. White board - 1 No.
10.	Fisheries Extension, Economics and Statistics	1102 Sq. Feet	40	Computer Lab with internet enabled 20 desktops

DEPARTMENT-WISE LABORATORIES AND EQUIPMENTS:

The under graduate laboratory of all the departments are well equipped with all facilities for conducting practical classes for the B.F.Sc students. The details are given below

1. DEPARTMENT OF AQUACULTURE

Sl. No	Name of the Lab	Equipments / Facilities Available
1.	UG Laboratory	• BOD incubator • Glass aquarium tanks • Imhoff cone/Imhoff cone rack • Multiparameter water quality analyser • Electronic weighing balance • Submersible pump • Air pump • Secchi Disc • Water bath • ORP meter • Tissue culture rack • Lux meter • Hemocytometer • Artemia culture cone • Plankton net • Laminar air flow cabinet

		• Sedgewick rafter counting chamber plastic • Tanks for algal culture (20 l)
2.	Fish Nutrition Laboratory	• Protein Analyser • Fat Analyser • Fibre Analyser • Vertical Autoclave • Appliances for making fish feed

2. DEPARTMENT OF FISHERIES RESOURCES MANAGEMENT

Sl. No	Name of the Lab	Equipments / Facilities Available
1.	UG Laboratory	• Biological microscope • Research Trinocular microscope • Stereozoom microscope • Dissection microscope • HDMI 5 mp camera with software and documentation system • Rotary microtome • Water bath • Electrophoresis unit • Deep Freezer • Refrigerator • Tagging gun • Digital Vernier calliper
2.	Fish Museum	The Department of Fisheries Resource Management is maintaining a Fisheries Museum with an area of 294 sq. ft. in which about 290 finfish and shellfish specimens, 7 chart boards are in display.

3. DEPARTMENT OF AQUATIC ANIMAL HEALTH MANAGEMENT

Sl. No	Name of the Lab	Equipments / Facilities Available
1.	UG Laboratory	• Vertical Laminar Airflow • Hand Refractometer • pH and DO Meter • Electronic Balance • Autoclave • Water bath • Trinocular Microscope • Hot Air Oven • Refrigerator • Microwave Oven • Bacteriological Incubator • Orbital Shaker
2.	Molecular Laboratory	• Ultra Deep Freezer- Vertical • Gel electrophoresis Apparatus • Thermocycler • Mini spinner • Vortex mixture • 1 KVA Online UPS • Autoclave • Gel Documentation System • Bio photometer • Double Distillation Unit • Refrigerated Centrifuge • Heating Block PCR Workstation

4. DEPARTMENT OF AQUATIC ENVIRONMENT AND MANAGEMENT

Sl. No	Name of the Lab	Equipments / Facilities Available
1.	UG Laboratory	• UV Spectrophotometer • pH meter • BOD incubator • Hot air oven • Weighing balance • Muffle furnace • Flame photometer • Refrigerator • Automatic weather station • Microscope • Vacuum pump • Distillation unit • Hot plate

5. DEPARTMENT OF FISH PROCESSING TECHNOLOGY

Sl. No	Name of the Lab	Equipments / Facilities Available
1.	Biochemistry laboratory	• Heating Mantle • Hot Plate • Hot air oven • Weighing Balance • Automatic Double distillation system • Protein analyzer • Fat analyzer • Fibre analyzer • Fume hood • Water bath • Muffle furnace • Refrigerator

		• Centrifuge • pH meter
2.	Processing Unit	• Flake ice machine • Continuous heat band sealer • Deep freezer • Air fryer • Sandwich maker • Double seaming machine • Over pressure retort • Sealing machine • Microwave oven • Grinder • Mixie • Weighing balance • Tray drier • Baking oven • Stainless steel tables – 3 Nos. • Refrigerator
3.	Microbiology unit	• PCR thermal cycler • Gel Documentation System • Bio-Spectrophotometer • Refrigerated micro centrifuge • Autoclave • Deep freezer • Refrigerator • Laminar air flow chamber • Hot air oven • Incubator • Colony counter • Magnetic spinner • Vacuum filtration unit • Trinocular Microscope

		• Binocular Microscopes • Hotplate • Weighing balance
--	--	---

6. DEPARTMENT OF FISHERIES ENGINEERING ANF FISHING TECHNOLOGY

Sl. No	Name of the Lab	Equipments / Facilities Available
1.	Fishing Gears and Crafts lab	Models of fishing gears • Gill net • Scoop net • Trawl net • Trammel net • Crab Trap • Stake net • Turtle excluding device • Trap model • Long line gear Accessories • Floats & Sinkers • Different types of Knots • Different types of Hitches • Different types of Bends Models of fishing crafts • Tuticorin boat • Rampani boat • Dugout canoe • Chinnamaram • Thundilmaram • Longliner with hook • Squid jigging with artificial fish • Gillnetter with gear

		• Bottom Trawler with gear • Out trigger Trawler
2.	Navigation and Seamanship Lab	• Life saving equipments • Compass - boat type • Compass - ship type • Navigational lights • TPA • Azimuth circle • Hydrostatic Releasing gear • Line throwing apparatus • International code flags • Navigational marine charts • Emergency communication equipments • Navigation marine chart papers • Fish finding equipments • Testrig refrigeration unit

7. DEPARTMENT OF FISHERIES EXTENSION, ECONOMICS AND STATISTICS

The department has the following facilities

1. Audio Visual aids for indoor and outdoor technology transfer programme
2. Business Start up cell
3. Work under progress: Construction of Farmers' training centre cum hostel

DEPARTMENT WISE UNDERGRADUATE LABORATORY FACILITIES



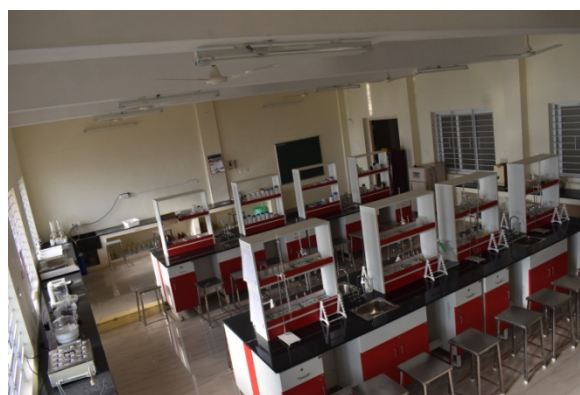
Aquaculture Laboratory



Biology Laboratory



Aquatic Animal Health Laboratory



Aquatic Environment Laboratory



Biochemistry Laboratory



Fish Processing unit



Microbiology Laboratory



Fishing gears and crafts Laboratory



Navigational and seamanship Laboratory

6.4.5. CONDUCT OF PRACTICAL AND HANDS-ON-TRAINING:

Apart from the main campus and dedicated UG laboratories (as shown 6.4.4), Based on the subjects the students learn, they are being regularly taken to various places for exposure and field level experience. All the departments conduct the regular practical classes for each course as per the course curriculum of the ICAR. In addition, field exposure is provided through field visits to nearby farms, hatcheries, farm ponds, reservoirs, etc specifically to ensure the exposure on the various farming practices and on the systems developed to carry out aquaculture. Practicals are conducted in batches, in order to provide more exposure to individual student following the ‘learning by doing’ principle. The Department of Aquaculture has instructional farm in two different location for freshwater and brackish water instructional farm facility. The construction of the instructional farms is in progress. Brackish water Instructional Farm is located at University Headquarters,

Nagapattinam in a total area of 2 Ha and Freshwater Instructional Farm is located at Korukkai in a total area of 5.81 Ha

6.4.6. SUPERVISION OF STUDENTS IN UG PROGRAMMES:

The Dean, Head of the institute supervises the faculty and student activities in the classrooms through internet enabled Closed-Circuit Television (CCTV). At present, there is dedicated CCTV cameras in all the four UG classrooms and also in the examination hall. With the help of this provision, the Dean ensures students and teachers time bound engagement in the class hours. Excluding the Dean, there are, 15 Assistant Professors and 6 Assistant Professor (in contractual basis) working in the seven departments of the college and at present there are 161 UG students in the institute, thereby on an average there is a teaching faculty for every 8 UG students in the institute which is a sound learning environment and creates an effective monitoring platform for academic progress.

In addition to it, for every batch of UG students, two teaching faculty have been assigned as Student Coordinator and Counselor respectively. There is a dedicated counseling time (which is also mentioned in the academic time table) in which the aforesaid teaching faculty will appraise the students' learning progress more importantly get their feedback about the teachers and their teaching skills. This counseling session is helping a lot in boosting both the teaching and learning process in the college.

6.4.7. FEEDBACK OF STAKEHOLDERS (STUDENTS, PARENTS, INDUSTRIES, EMPLOYERS, FARMERS etc.):

The academic sessions of the college are being assessed with feedback from the students regarding teaching through questionnaires. The academic section of the college assesses the feedback from the students regarding teaching and learning through questionnaire having set of tangible questions. Based on this, teaching performance and lacunae if any and learning difficulties are assessed in quantifiable terms. The feedback proforma are prepared in due consultation with the Dean of the college which are provided to the students. Academic section collects the feedback from the students and their parents.

The In-Plant Training Co-ordinator collects the feedback from industries, farms, processing plants and employers of the students, while Department of Fisheries Extension,

Economics and Statistics collects the feedback from farmers who have availed training at the College. Further, the Dean interacts with the students at regular interval for seeking feedback from the students. The Student's Placement and Career guidance cell functioning in the institute assesses the requirements of the employers and let the students as well as faculty know about the feedback of the employers during the campus interviews organized at the institute.

6.4.8. STUDENT INTAKE AND ATTRITION IN THE PROGRAMME FOR LAST FIVE YEARS:

Actual student admitted in last five years						Attrition (%)				
Name of the degree programme	Y1 2017	Y2 2018	Y3 2019	Y4 2020	Y5 2021	Y1 2017	Y2 2018	Y3 2019	Y4 2020	Y5 2021
	-	-	-	-	-	-	-	-	-	-
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
B.F.Sc.	21	31	43	44	47*	-	-	2.3% (1 No)	-	-
*Admission is in progress and closes on 31 st March 2022										

6.4.9. ICT APPLICATION IN CURRICULA DELIVERY:

ICT has also become integral to the teaching-learning interaction, through such approaches such as replacing chalkboards with power-point presentations on LCD projectors, LED television monitors etc. The college classrooms are well equipped with audio-visual aids and regular lectures are delivered through power point presentations. Educational videos, short films, etc are included in the teaching – learning programme to convey concept with clarity. The college has wi-fi internet connectivity for staff as well students in all department laboratories, classrooms as well as in the library. Teaching through ICT tools is being followed for effective teaching.

CERTIFICATE

I, the Dean Dr. S. Balasundari hereby certify that the information contained in the Section 6.4.1 to 6.4.9 are furnished as per the records available in the college, and degree awarding university.

Signature of the Dean of the college
with Date & Seal